

NIST Update to the

Visiting Committee on Advanced Technology


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Director

National Institute of Standards and Technology

March 18, 2003

Outline

- Organizational Issues 
- Budget and Planning
- Program Highlights

NIST Staff Survey

- Third employee survey (1999, 2000, 2002)
 - 66% response rate.
 - No significant differences between Boulder and Gaithersburg sites.
- First survey of the NIST Associates
 - About 65% response rate.
 - Mirrors staff responses on strengths.
- Feedback to staff
 - NIST-wide summaries in Gaithersburg and Boulder.
 - Facilitated sessions to management teams of all OUs.
 - Facilitated sessions for approximately 30 Divisions selecting this option.
 - Complete survey results posted on internal NIST web for all Employees and Associates to review.

NIST Staff Survey: Strengths

- Survey results reflect many NIST strengths
 - Should be recognized, celebrated, and perpetuated.
 - Efforts to improve NIST should not diminish these strengths.
- Some key strengths:
 - Most NIST staff have a strong sense of pride in and commitment to NIST.
 - Most NIST staff believe their:
 - Immediate work group is strong.
 - Co-workers are competent.
 - Immediate supervisors are effective.
 - Work group understands the needs of its customers and is committed to doing a good job for customers.
 - Most staff find their jobs challenging and rewarding.

NIST Staff Survey: Strengths

- NIST is improving as an organization.
- Meaningful improvement from the previous survey (2000).
- 2000 and 2002 Employee Surveys shared 75 common items.
 - 73 improved from 2000 to 2002.
 - 57 of the increases are statistically significant.
 - Average increase was 5% - meaningful for any organization.

NIST Staff Survey: Needs for Improvement

- Leadership issues
 - Significant fraction of senior leaders (Division Chiefs and above) need improved leadership and management skills.
- NIST-wide planning processes
 - Many NIST staff do not understand and/or do not support major NIST-wide planning-related issues such as the NIST 2010 strategic plan.
 - Most NIST staff do **not** believe
 - Implementing the NIST 2010 plan will benefit their work.
 - Their OUs perform effective planning.
 - Their OUs clearly communicate goals, objectives, and priorities.

NIST Staff Survey: Needs for Improvement

- Clarity and fairness in management decisions
 - Many NIST staff don't believe decisions about hiring, pay raises, bonuses, promotions, and work assignments are made fairly, or in a clear and understandable manner.
- Effects of the competitive sourcing (A-76) process
 - Many NIST staff do not understand what the A-76 process is or how it may affect the organization.
 - Those familiar with the process consider it harmful to their work at NIST.

NIST Response

- People Council developing a NIST-wide response plan
 - Part of a broader improvement plan for NIST.
 - Communication of intended actions and progress will be crucial to success.
- Senior Management Retreat April 3-4 to:
 - Select near-term NIST-wide priorities and commission action plans.
 - Review and adjust the decision-making process.
 - Effectiveness of Senior Management Board and Councils.
 - Improvements in NIST Director's leadership style.
 - Review and adjust implementation of NIST 2010 strategic plan.
 - Develop plans to communicate results throughout NIST.

Boulder Director



**Zelda Chapman
Bailey**

- Degree in Geology, Indiana University.
- Hydrogeologist, US Geological Survey, 1977 to 2000.
- Interim Director, National Cave and Karst Research Institute since 2000.
- Served for several years on Boards of Directors for the American Water Resources Association (AWRA) Colorado Section and the Greater Denver Area Gem and Mineral Council.

NIST CIO / IT Services Plan

- NIST plan for centralizing IT services in a new Chief Information Officer (CIO) organization in Director's Office approved by DoC
- IT services and internal IT security personnel detailed to Director's Office under Acting CIO
- National search for CIO underway



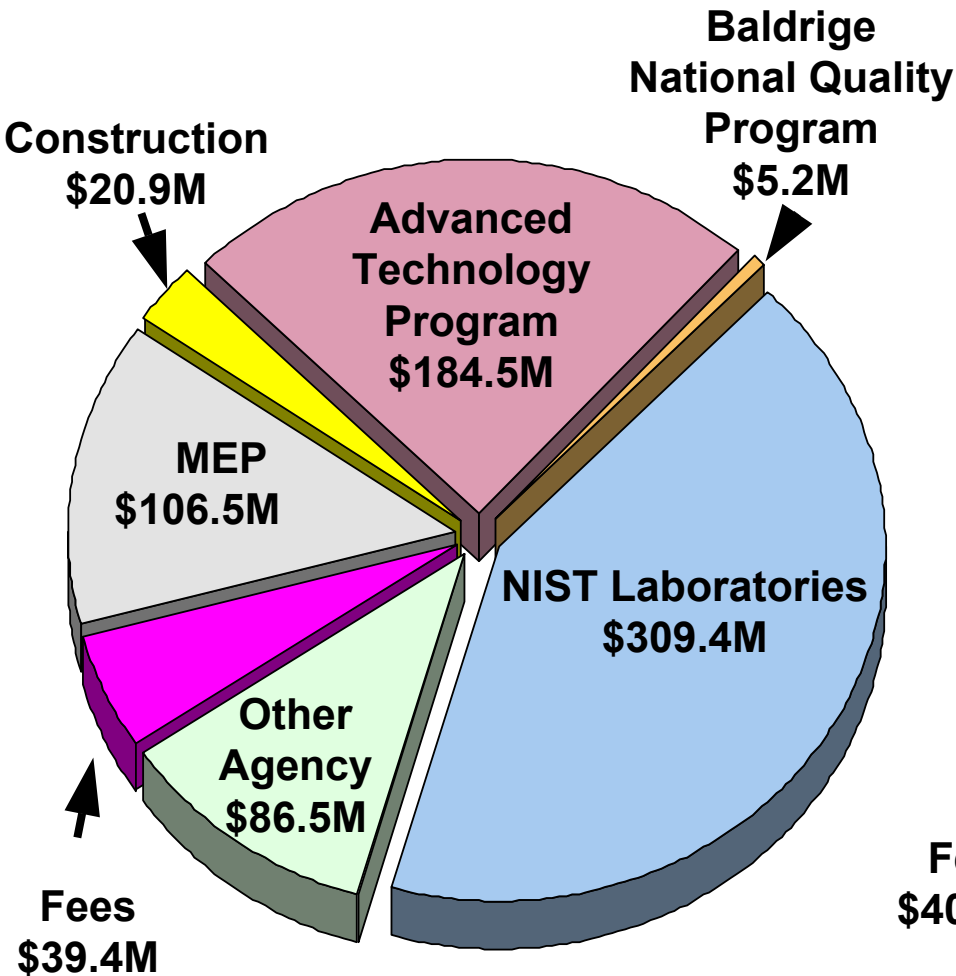
Cita Furlani is
the Acting CIO

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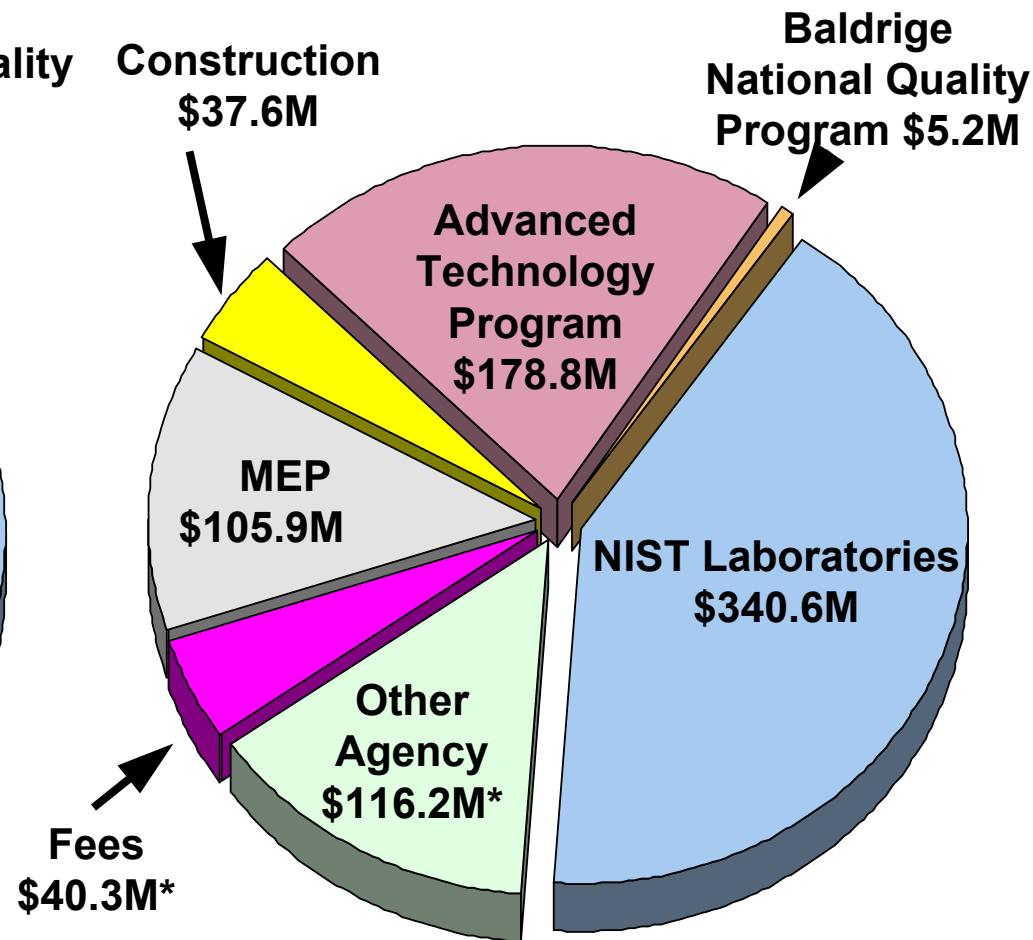


FY2002 Budget and FY2003 Budget Estimate



FY2002
Total=\$752M

*estimated



FY2003
Total=\$825M

Excludes congressional earmarks & supplementals

FY 2003 Appropriations Highlights

Infrastructure

- AML equipment and utilities \$14.9 M
- AML fitup \$ 4.4 M
- Boulder construction \$11.0 M

Homeland Security

- Law enforcement standards \$ 3.0 M
- WTC investigation and lessons learned \$ 3.0 M
- Wireless technologies and computer security
checklists and guidelines \$ 2.1 M
- Computer Security Expert Assist Team \$ 1.0 M

Other SFAs

- Health Care \$ 2.0 M
- Nanotechnology \$ 1.5 M

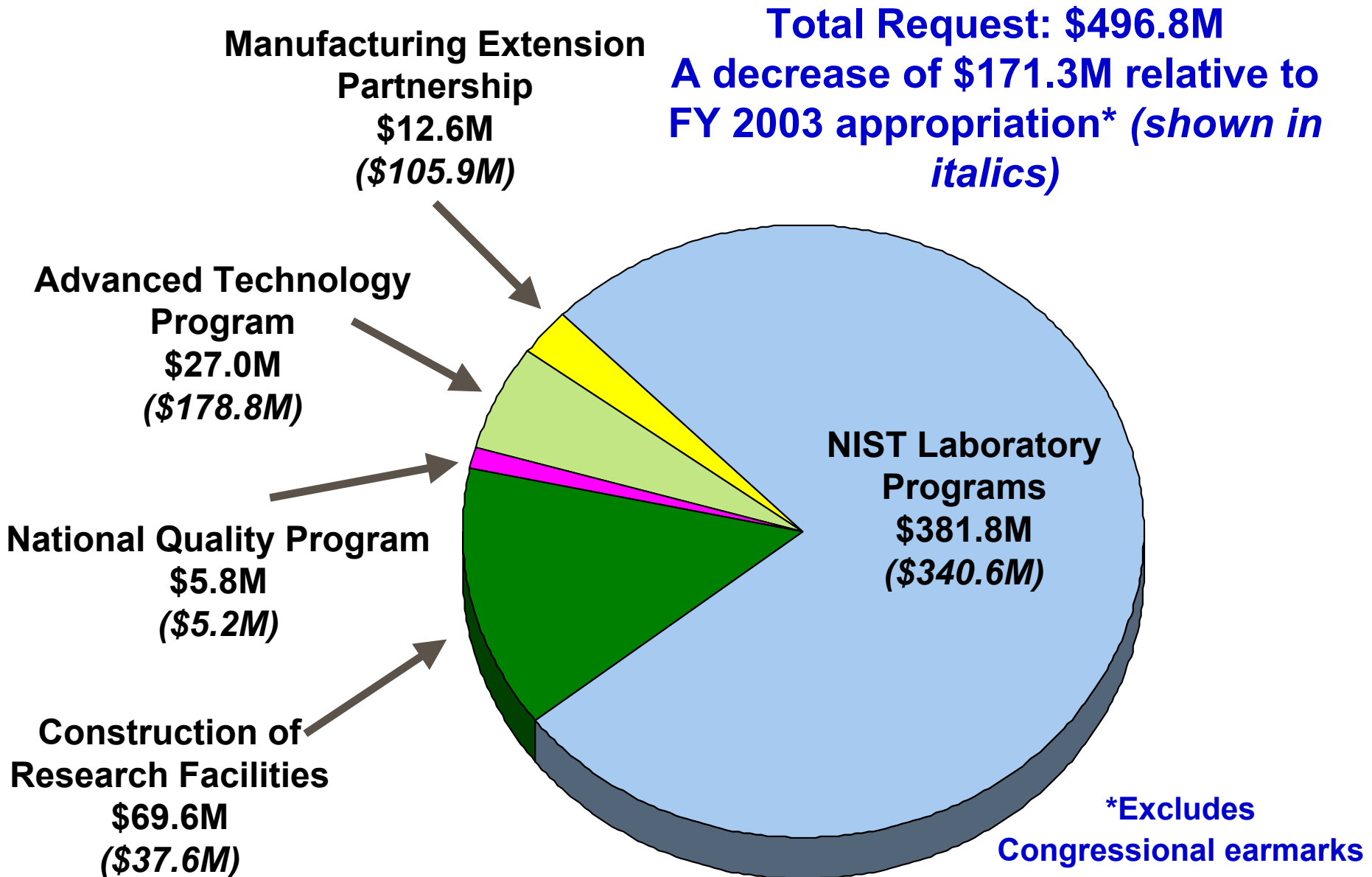
Other National Needs

- Voting standards \$ 0.5 M

Congressional Pass-Throughs

Pass-through	Amount	New in FY03	Sponsor
Telework Project	\$2.4M	No	\$2.4M in FY02, Rep. Tom Davis (R-VA).
Wind Research	\$2.5M	No	\$4M in FY02, Sen. Kay Bailey Hutchison (R-TX)
CIP policy program at George Mason University	\$6.5M	No	\$6.5M in FY02, Reps. Frank Wolf (R-VA) and Tom Davis (R-VA)
Medical University of South Carolina	\$13.8M	No	\$8M in FY02, Sen. Hollings (D-SC)
Thayer School of Engineering (Biomass, Dartmouth)	\$6.0M	No	\$6M in FY02, Sen. Judd Gregg (R-NH)
Institute for Information Infrastructure Protection (Dartmouth)	\$3.0M	No	\$3M in FY02, Sen. Judd Gregg (R-NH)
Institute for Politics (Dartmouth)	\$4.0M	No	\$3.35M in FY02, Sen. Judd Gregg (R-NH)
Franklin Pierce Manse	\$1.3M	Yes	Sen. Judd Gregg (R-NH)

President's FY 2004 Budget Request for NIST



President's FY2004 Budget Highlights for the NIST Labs

Released February 3, 2003

Homeland Security

WTC Investigation (Lessons learned from the WTC)	\$ 4.0 M
Measurement Infrastructure for Homeland Security	\$ 5.3 M
PATRIOT Act (Biometric Identification)	\$ 1.0 M

Measurement Infrastructure for Long-Term Economic Growth

Nanoscale Measurement Science	\$ 5.2 M
Quantum Information Science	\$ 3.0 M
Health Care Quality Assurance	\$ 1.0 M

NIST Infrastructure for the 21st Century

Boulder Construction	\$21.3 M
AML Maintenance, Operation, and Equipment	\$ 6.7 M
Metrology Building 220 (Gaithersburg) Renovation Design	\$ 3.4 M
Time-Scale Dissemination Backup	\$ 1.4 M
Facilities Modifications and Improvements	\$10.6 M

President's FY2004 R&D Budget Priorities Map onto NIST Programmatic SFAs

- President's FY2004 R&D Budget Priorities
 - Homeland Security and Antiterrorism.
 - National Nanotechnology Initiative.
 - Networking and Information Technology.
 - Molecular-Level Understanding of Life Processes.
 - Climate Change Science and Technology.
 - Education.

Implementing NIST 2010 - Outreach

- Identify unique opportunities for NIST to develop mutually beneficial partnerships
- Possible opportunities:
 - NSF—National Nanotechnology Infrastructure Network.
 - NIH—intersection of biological and physical sciences.
 - Homeland Security Department agencies (TSA, etc.).
 - University of Maryland—various colleges and departments.
 - University of Maryland Biotechnology Institute—expand beyond the current successful CARB partnership.
- Strengthen and expand partnerships with industry
 - Industry is NIST's natural constituent.

What NIST Brings to a Partnership

- Unique mission.
- World renowned scientist and engineers.
- Unique capabilities and facilities.
- Strong relationship with industry.
- A history of partnership with other government agencies.

Measurements and Standards

- NIST enhances productivity, facilitates trade, and improves the quality of life by:
 - Advancing measurement science to accelerate R&D and technology dissemination.
 - Facilitating confidence in measurements performed by industry and government.
 - Ensuring the international acceptance of U.S. measurements and standards.
 - Helping to ensure the technical rigor and effectiveness of documentary standards.
 - Promoting efficiency in the U.S. documentary-standards and conformity-assessment systems.

Unique NIST Measurement and Research Facilities



- NIST Center for Neutron Research.
- Most versatile facility in the U.S. with more than 1750 annual users.

- Advanced Chemical Sciences Laboratory.
- Cold rooms for biotechnology research.
- Clean rooms and non-metallic modules.
- Excellent ventilation system and capabilities to handle corrosive chemicals.



Advanced Measurements Laboratory

- Will be the world's best measurements laboratory.
- Will provide the measurements and standards needed by industry and science for key 21st century technologies.
- Establishes nano and micro-fabrication capabilities, primarily in the Cleanroom Building, through cross program usage.
- Provides NIST with the basis for enhanced external collaborations.



AML on time for completion and occupancy in phases from January 2004 to June 2004, *pending resolution of budget issues.*

National Science Foundation (NSF)

- NSF visit to NIST on March 6
 - Dr. Esin Gulari, NSF Acting Assistant Director for Engineering.
 - Warren DeVries, Director of the Division of Design, Manufacture, and Industrial Innovation in the Engineering Directorate.
- Possible designation of appropriate NIST facilities
 - Centers for nanoscience and engineering in NSF's National Nanotechnology Infrastructure Network.
 - Emphasizing NIST's core mission of measurements and standards.
- Formalizing additional NSF-sponsored education and training programs at NIST
- Other appropriate activities of mutual interest

University of Maryland (UMD)

- UMD visit to NIST on March 5
 - Dennis O'Connor, UMD's Vice President for Research and Dean of Graduate Studies.
 - Rae Grad, Director of UMD Federal Relations.
 - Deputy Under Secretary for Technology Ben Wu participated in the visit.
 - Discussed possible opportunities to increase collaboration.
- First phase follow up with UMD
 - Discuss more details of potential interactions.
 - Tours of UMD labs and facilities.
 - Discussion of areas of mutual interest.

National Institutes of Health (NIH)

- Joint NIH/NIST Postdoc Program administered by NRC
 - “Training an Interdisciplinary Workforce: Interfacing Biology and the Physical Sciences.”
 - Postdocs will divide their two-year tenure between NIST and NIH, with an advisor on each campus.
- NIBIB partnership opportunities
 - National Institute of Biomedical Imaging and Bioengineering – greatest mission/capability overlap with NIST.
 - NIBIB Director and staff visited NIST in December 2002.
 - March 21 followup visit to include discussion of research collaborations.

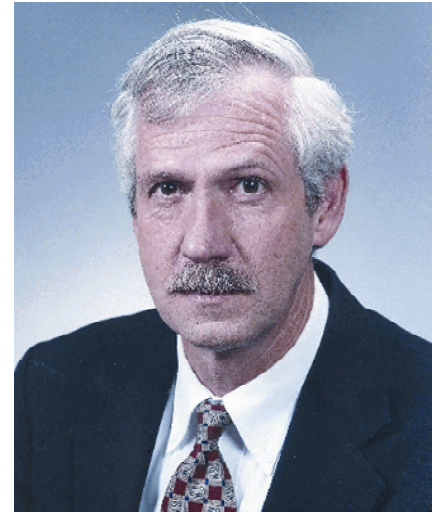


Angela Hight Walker

NIST - DHS Standards Partnerships

- Mary Saunders, Chief, Standards Services Division
 - Co-chair of the ANSI Homeland Security Standards Panel (HSSP).

- Bert Coursey, Chief, Ionizing Radiation Division
 - Director of Standards in the Office of Research and Development in the Science and Technology Directorate at DHS.



Legislative Mandates

- **Federal Information Security Management Act (FISMA)**
 - \$20M/year to strengthen IT security standards and guidelines for federal agencies.
 - \$1.25M/year to host Information Security Advisory Board to advise Administration on federal IT security issues.
- **Cyber Security Research and Development Act**
 - \$25M/year for extramural IT security R&D and education grants program.
 - \$6M/year for internal NIST IT security R&D.
- **Help America Vote Act**
 - \$30M/year for extramural Voting Research Grants.
 - \$10M/year to develop voting technology standards and tests.
- **National Construction Safety Team Act**
 - \$25M/year to form/lead National Construction Safety Teams to investigate building disasters.
- **Enterprise Integration Act**
 - \$47M over four years to work with industries to develop standards for information exchange and to help small businesses automate their processes.

National Construction Safety Team (NCST)

- NIST-led NCST investigation into February 20 Rhode Island nightclub fire:
 - Determine the conditions in the nightclub prior to the fire.
 - Reconstruct fire ignition, fire spread and survivability using computer models.
 - Examine impact on survivability of having an installed sprinkler system.
 - Analyze the emergency evacuation and occupant responses to better understand the impediments to safe egress.



NIST is now the lead federal agency in building disaster investigations


Help America Vote Act

- Conducted preliminary meetings with some of the major constituents
 - Federal Elections Commission (Office of Election Assistance).
 - National Association of State Election Directors (NASED).
 - IEEE.
 - Congressional staff.
- Arden Bement and Susan Zevin addressed the formal annual meeting of the NASED on February 20

Planning for FY 2005 Budget

- Engage Senior Management Board to lead planning of budget:
 - Tailor planning to political, economic, and technical environment.
 - Develop strong business case for budget initiatives.
 - Develop effective marketing plan for budget initiatives.

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Our Sympathy to the Families and Colleagues of the Space Shuttle Columbia Crew

NIST's extensive collaborations with the Space-Shuttle Program include the CVX-2 Experiment on the tragic Columbia Shuttle Mission.

CVX-2
The Critical Viscosity
of Xenon Experiment



**Gregory Linteris
flew on two Space
Shuttle Missions in 1997**

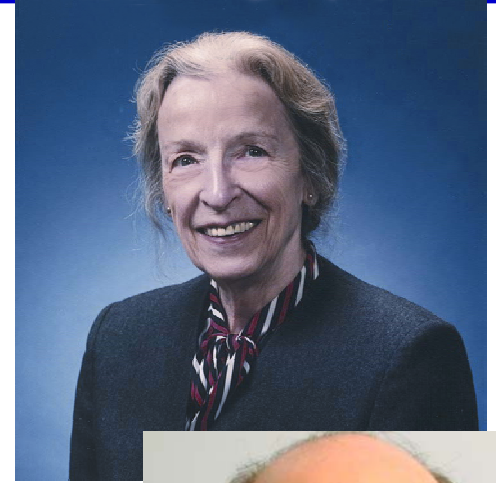
Robert Berg

Michael Moldover

NIST CVX-2 Principal Investigators

NIST Scientists Receive Awards

- 2002 series of Service of America Medals
 - Katherine Gebbie received the Service to America Career Achievement Medal.
- Broadband wireless industry recognizes “Government Vision”
 - Wireless Communications Association International (WCA) confers highest honor to Roger Marks.
- Discover Magazine’s 50 Most Important Women in Science
 - Deborah Jin.



NIST Emeritus Scientists Receive Honors



Marilyn E. Jacox

Selected for the American Chemical Society's 2003 E. Bright Wilson Award in Spectroscopy.



Johanna Levelt Sengers

Selected as the North American recipient of the 2003 Women in Science Awards to be presented by L'Oreal and UNESCO.